CLAIMS

What is claimed is:

1. Method for applying a vibration damping layer to a heat shield, comprising:

locating regions of the heat shield with maximum resonance vibrations; and

applying a porous coating of Al-Si onto the heat shield in the located regions, the coating providing the vibration damping layer.

- 2. The method of claim 1, wherein the locating includes identifying the regions with a laser vibration scan.
- 3. The method of claim 1, wherein the locating includes identifying the regions with computer aided engineering vibration analysis.
- 4. The method of claim 1, wherein the composition of the Al-Si is in the range of about Al-Si 4% to Al-Si 18%.
- 5. The method of claim 1, wherein the composition of the Al-Si is about Al-Si 12%.

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- 6. The method of claim 1, wherein the heat shield is made of stainless steel.
- 7. The method of claim 1, wherein the applying includes spraying the Al-Si coating with a thermal spray process.
- 8. A heat shield for a catalytic converter, comprising:

a substrate; and

a coating made from Al-Si applied to the substrate to form an mechanical bond between the substrate and the coating, the coating providing a damping layer to reduce the peak resonances of the heat shield.

- 9. The heat shield of claim 9, wherein the substrate is made of stainless steel.
- 10. The heat shield of claim 9, wherein the coating is made from a eutectic Al-Si composition in the range of about Al-Si 4% to Al-Si 18 %.
- 12. The heat shield of claim 10, wherein the Al-Si composition is about Al-Si12%.